17 October 1951

MEMORANDUM FOR: CHIEF, EE DIVISION

ATTENTION: EE[ ]

VIA: EE[ ]

SUBJECT: Free Fall Drop of One-Pound Flour Bags

REFERENCE: (a) SECRET Memo from CEE for CRDD/TSS dtd 14 Aug 51, Subject: "Flour Drops for Project BEFIEND"

1. Introduction:

R&D has been requested by the referenced (a) memorandum to prepare a type of bag of flour which could be dropped free fall from an aircraft without breaking. In further discussion between Mr. Daniluck, EE, and Mr. Spoehel, R&D, a free fall of 10,000 feet was specified.

2. Test Materials and Procedures:

On 3 October 1951 the undersigned had 24 one-pound bags of flour dropped from 10,000 feet and at a speed of 187 miles per hour. Six of each of the four following types were dropped:

a. One pound of flour in a tight-fitting paper bag inside a very loose-fitting sealed foil barrier material envelope which was 9" x 10".

b. Same as a., except that the foil barrier material envelope was 10" x 11½".

c. Same as a., except that the inner bag was tight-fitting cloth.

d. Same as a., except that the inner bag was tight-fitting cloth, and the outer bag was 10" x 11½".

The outer bag was a single piece of foil barrier material folded once and sealed along three sides.

3. Results:

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Neither the first drop of a single package nor the third and last drop of 22 packages was seen at any time during their fall. The second drop of a single package was not seen leaving the plane but was sighted just before falling into a one-foot high growth of brush. The package was falling slowly. The 9" x 10" outer bag was not broken but was squashed to 7" x 10" dimensions. Upon cutting open the outer bag, the inner paper bag was found to be intact.

4. Conclusions:

a. Although only one package was found, this package was the one with the smallest area and consequently, the greatest dropping speed, and the one with the paper inner bag which would be weaker than the cloth inner bag. It is felt that this bag is the most likely to break of all dropped, and since it did not, the others probably also did not break.

b. The package fell in low brush, which was not as great an impact as if it had fallen on bare ground, but since the inner bag was not broken, it was concluded that the paper bag inside the 9" x 10" foil barrier material bag is a technically satisfactory package for free fall drops of one pound of flour from 10,000 feet.

c. It is understood from the telephone conversation between [redacted]: of EE and [redacted] of R&D that EE Division is now procuring these items as the result of an understanding between the undersigned and [redacted]

[redacted]
Acting Chief
Research & Development